

Need more information?

References:

1. *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* (2011) Chapter 2.1.12 http://www.oie.int/fileadmin/Home/eng/Health_standards/tahm/2.01.12_Q-FEVER.pdf
2. Merck Veterinary Manual <http://www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/52000.htm&word=Q%2cfever>
3. The Center for Food Security and Public Health, Iowa State University, Q Fever http://www.cfsph.iastate.edu/Factsheets/pdfs/q_fever.pdf

Key Facts

- The «Q» stands for “query”, the name being given since the cause of an 1935 outbreak of illness among abattoir workers in Australia fever was not known.
- *Coxiella burnetii*, the causative agent, was identified in 1937 by Dr. Burnet.
- In Germany an outbreak affected 300 people when a sheep gave birth at a livestock market, and in Canada a group of persons was infected while playing cards in a house where a cat gave birth.
- Australia introduced a vaccination program for people whose occupation puts them at risk in 2001.
- Q fever is a potential biological warfare agent being very infectious and very durable in the environment as well as capable of windborne spread.



Q Fever

What is Q Fever?

Q fever is a widespread disease caused by the bacteria *Coxiella burnetii*, which is able to infect mammals, birds, reptiles and arthropods. It causes a mild disease in ruminants, but can cause abortions and still births in cattle, sheep and goats.

It is also a zoonosis, a disease of animals that can infect humans.

Q fever is listed in Chapter 1.2 of the OIE *Terrestrial Animal Health Code* (2011) and Member Countries and Territories are obligated to report occurrences of the disease to the OIE according to Chapter 1.1 (Notification of diseases and epidemiological information).

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Q Fever



Where is the disease found?

First identified in Australia in 1935, Q fever has since been found throughout the world with the exception of New Zealand.

Cattle, sheep, and goats are the primary reservoirs of *C. burnetii*. Infection has been noted in a wide variety of other domestic animals including dogs, cats, rabbits, horses, pigs, camels, buffalo, rodents, and some birds, that can transmit the infection to humans without showing signs of illness.

How is the disease transmitted and spread?

C. burnetii is shed in milk, urine and feces. But most importantly, during parturition, huge concentrations of bacteria, up to a billion per cubic centimetre, are found in the amniotic fluids and the placenta.

Outside the animal the bacteria becomes a small, dense, long lasting spore-like form which is able to resist heat and drying. It can then contaminate dust and be spread by wind for long distances.

It so highly infectious that a single inhaled organism can cause clinical illness in an animal or person.

Outbreaks typically occur following a birth or abortion where the environment becomes contaminated with birthing fluids.

Q fever can also be spread by ticks which pass the bacteria from an infected to a susceptible animal, and whose faeces contain the bacteria thus also contaminating the environment. Since it is also shed in the milk of an infected animal, it can be contracted by drinking non pasteurised infected milk.

What are the clinical signs of the disease?

Typically a mild disease of animals, mostly affecting cattle, sheep and goats, the most serious consequence is that it causes abortions late in the pregnancy.

How is the disease diagnosed?

In samples from aborted or affected animals the diagnosis is confirmed by identifying the bacteria or more commonly using serological test to identify antibodies according to the standards found in Chapter 2.1.12 of the *OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* (2011).

What is being done to prevent or control the disease?

Animal vaccination has been used in areas where the infections are common.

More generally, sanitary measures to remove afterbirth and birth fluids, and to clean and disinfect areas where animals have given birth can prevent the disease from spreading.

In the laboratory, strict controls are needed and *C burnetii* is to be handled under biosafety level 3 standards, as outlined in Chapter 1.1.2, Biosafety and Biosecurity in the veterinary microbiology laboratory and animal facilities, *OIE Terrestrial Manual*, 2011.

What is the public health risk associated with this disease?

Because it is highly infectious for humans, Q fever is an important zoonosis, with veterinarians, laboratory workers, farmers and abattoir workers at risk. Surveys have shown that significant numbers of livestock handlers have antibodies indicating exposure to the organism.

Less than half of people infected become ill, and most infections are mild. But affected persons can develop a high fever with headache, muscle pains, sore throat nausea and vomiting, chest and stomach pains.

The fever can last for one or two weeks, and lead to pneumonia or affect the liver. Treatment involves long term antibiotic therapy.

In a small percentage of cases, a chronic severe debilitating disease occurs. People with suppressed immune systems and those with pre-existing heart valve problems are at risk of this complication, which is often fatal. There is also a post Q fever syndrome of chronic fatigue.

Q fever is the second most commonly reported laboratory infection with several recorded outbreaks involving 15 or more persons.

